

AUSTRALIAN OS9 NEWSLETTER

sides 'No. of cylinders' (in decimal) :Interleave value: (in decimal) @FREE Syntax: Free [devname] Usage : Displays number of free sectors on a device @GFX Syntax: RUN GFX(<funct><args>) Usage : Graphics interface package for BASIC09 to do compatible VDG graphics commands @GFX2 Syntax: RUN GFX2([path]<funct><args>) Usage : Graphics interface package for BASIC09 to handle

Usage : window help to @IDENT from OS single lin directory @INKEY input a the pro memory text files @

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AUSTRALIAN OS9 NEWSLETTER
Newsletter of the National OS9 User Group
Volume 6 Number 6

EDITOR : Gordon Bentzen
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SUPPORT : Brisbane OS9 Level 2 Users Group.

What's new? The people I speak to on a regular basis would have heard this question many times before, (usually my greeting at every conversation). Well I guess that this can very quickly become boring.

The good news however, is that there is very often "something new". We hope that you like the new "quality" of our newsletter presentation which has this time been printed on my new Ink Jet Olivetti JP150.

I really did not intend to do a review on Ink Jet Printers or this Olivetti thing, but I can't help but make a couple of comments.

When first looking for a new printer to replace my old but very faithful DMP-200 I had this idea of a Laser Printer. Well after being involved in the purchase and running of a "laser" at work, I quickly formed the opinion that a laser printer at home, and on my CoCo3, was somewhat of an overkill, I began looking at the ink jets. For better or worse, I chose this Olivetti over the Cannon and Citizen offerings and so far I am very happy with my choice in spite of some difficulties with initial setup. Thanks to Bob Devries, who saved my sanity just in time.

All Laser and Ink Jet printers are far more expensive to "feed" than the Dot Matrix printers but, "forget the cost, feel the quality!".

Anyway I now run two printers, and under this multitasking OS9 environment it should be easy to run them simultaneously, shouldn't it?

The DMP-200 continues to run from the CoCo3 serial port through a serial (at 9600 baud) to parallel converter as device /P. I also have a Disto II 3 in 1 controller which includes a Parallel Port. I have at the moment used a /P1 descriptor to go with the "parallel" driver.

Now to the NEW and exciting part for me. In printing each month's newsletter, we usually print the whole thing more than once (Yes we do find some of the mistakes). To print the same file at the same time to two different printers is something else!! Those MS-DOS machines could only watch in wonder.

I have just watched my DMP-200 and Olivetti JP150 print this newsletter as concurrent processes, which appealed to me so much that I just had to mention it.

TREASURER : Don Berrie
LIBRARIAN : Jean-Pierre Jacquet

IN THIS NEWSLETTER

A good deal of this issue is taken up by Marty Goodman's report on the recent U.S. Cocofest and on Burke & Burke's "Power Boost".

We also have a Basic09 listing for everybody to type in. Yes go type it in, the practice is good for you. When you have finished you will be rewarded with a calendar for any month of any year. Our tutorial on 'C' will be continued next month.

SUBSCRIPTIONS

Yes we are close to yet another subs year and it time to remind you that subscription renewals are just around the corner. All current subscriptions will expire with the August 1992 edition. For those members who are new subscribers of the last month or so, we will treat your subscription as commencing 1st September 1992 and you will receive a complementary copy of July and August (or so).

We do appeal to those members who have supported our efforts in the past to continue that most valuable support for the coming year. Although we keep saying that the CoCo will never die, it must eventually happen. The good thing about this National OS9 Usergroup is that we see OS9 being around for a long time yet. I expect that during the next year or so we can expect to see a lot more reference to OSK and the machines which use it.

A copy of our Membership Application/Renewal form is included with this newsletter edition and we ask that you return a completed form so that we can keep our database up to date. Please pass on a copy of the form to anyone also interested in learning more about OS9.

The continuation of the National OS9 Usergroup will depend entirely on the membership numbers. The minimum membership of 20 which we set back in July 1988 will apply again this year. Current membership is just under sixty.

This is a good time to remind all of our basic intent. The National OS9 Usergroup newsletter is your newsletter and we need input from as many members as possible. We run this Usergroup as a non-profit amateur group to promote the free exchange of information, help and general sharing of knowledge and experiences with the OS9 operating systems.

Cheers, Gordon.

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Report on the Chicago CoCoFest and Computer Electronics Show by Marty Goodman

This is a brief (5K) report on the Friday Night Party with Marty, the first event of the 1992 Chicago CoCo Fest hosted by CoCoPRO!. And some comments on the Chicago Consumer Electronics show at which I spent six hours.

---marty

The first event of the "First Annual Last CoCoFest" (put on by CoCo PRO!) was the Friday Night "Party With Marty", an informal get-together for those who arrived in Chicago early for the Saturday and Sunday show. Some dozens of CoCo and OSK machine users showed up, and over the three hours between 7 and 10 PM we munched potato chips and pretzels, drank soda pops, and chatted about the CoCo and MM/1 machines, automobiles, and whatever else came to mind. Many of the attendees had been CoCo users for quite a while. One woman had, like me, been to every Chicago CoCo show except the first one.

Before the evening get-together, Steve Bjork and I had visited the Consumer Electronics Show (CES) that was also being held in Chicago. There I saw a mind boggling assortment of video games for Nintendo, Sega, NEC, and Atari games machines. I personally found it curious that NEC, which had what seemed by far technically the best hand held game machine and CD ROM based game machine (and which was the ONLY maker whose game cartridges would work in EITHER their desktop or handheld game machines) was an "also ran" in a games market whose big players were Nintendo and Sega. Still, NEC had a respectable showing at CES.

I saw at CES for the first time a demonstration of HDTV at the RCA booth. The system was the Sarnoff/NBC/Thompson HDTV format. The image was strikingly crystal clear... virtually of movie-house quality. The program shown consisted of a 15 minute jingoistic harangue to the audience to adopt that particular "American" HDTV standard. Even those pushing HDTV noted that they did not expect it to hit the consumer until around the year 2000, and allowed that it would be another year or two before the current bitter political and technological war between rival HDTV standards will be resolved. I can see HDTV as a vast improvement over current NTSC TV for viewing movies at home. Not only is the image vastly visibly sharper and clearer, with no

visible lines in a 3 foot by 6 foot projection screen that we viewed, but the aspect ratio of the screen is almost 2 to 1 (9 to 16, actually), so cinemascope type movies will fit nicely into the format without either "letterboxing" or butcher-like editing that is now needed for putting cinemascope movies onto NTSC video format. Note that, compared to a letterboxed NTSC movie, a HDTV image will have about four times the sharpness.

I personally was also interested in developments in the world of digital answering machines. AT&T had its nearly useless machine that can record no more than a total of 7 minutes of incoming messages total. Stay away from that piece of junk! But Panasonic was displaying a model they were about to release that could record digitally a total of 17 minutes of incoming message time and up to 2 minutes of outgoing message. THAT machine begins to have sufficient record time to be useable! The Panasonic featured the ability to delete one or more messages at random, leaving the remaining ones intact and in order. It also had some "speech processing" circuitry to allow play back of the messages at 1.3 X speed in a fashion that was relatively intelligible (pitch was unaltered in the speeded up playback). Suggested retail price was said to be about \$200.

I also had a chance to look at the new AT&T videophone. This unit can send up to five frames per second of a 128 by 128 pixel by 256 color image over a telephone line SIMULTANEOUSLY with the carrying of a two way voice conversation. The device allowed you to choose continuously between a program that favored number of frames per second over image clarity or vice versa. The Videophones are to retail at \$1500 each... pretty steep for the crude (but recognisable) images they support. But as time goes by, and the price comes down, and the image quality improves, I can see these items becoming more common. If this happens, they will if nothing else lend an entirely new dimension to the world of 976 dial a smut services!

I hope to report tomorrow and/or the next day on the Chicago CoCo Fest. Stay Tuned!

---marty

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An OS9 Calendar Printer
written by Troy Saville
converted for OS9 by Brett Wynkoop

Here is a little programme to print a calendar for any month in any year. It works best when redirected to a printer. See the manual page for more information. [ED]

```
/*pcal.c                                     Sun Feb 26 23:08:25 EST 1989*/  
  
/*  
 *Contents: One page per month calendar program.  
 *  
 *Author : Troy Saville(evh@vaxl.acs.udel.edu)  
 *  
 *  
 *byebye - make a clean exit from the program  
 *getmddyy - get month,day,year of todays date(from the system)  
 *isleapyear - determine if year is a leap year  
 *janl - get day of week for 1st day of a year  
 *dayofweek - get day of week for any day of any year  
 *genweek - driver to print out one week of a month  
 *genmonth - driver to print out a complete month  
 *main - the pcal program  
 *  
 */  
/* 29 March 1989 ported to OS-9 By Brett Wynkoop (....cmcl2!esquire!wynkoop) */  
/* This program requires the Carl Kreider libl to compile under OS-9 */  
/*generate a calendar, 1 month per page*/  
/* to compile under OS9 uncomment the next line */  
  
#define OS9  
  
#include <stdio.h>  
#include <strings.h>  
#ifdef OS9  
#include <utime.h>  
#else  
#include <time.h>  
#endif  
  
/*width of calendar, not including margin*/  
#define NUMWIDTH 71  
/*#of spaces to indent calendar*/  
#define NUMINDENT 4  
#define INDENT() printf(" -4.4s",spaces)  
/*check for split square on calendar*/  
#define THESPLIT (weeknum == 5) && (endday < numdays) && (week[i]+7 <= numdays)  
  
static char *spaces = " ";  
static char *dashes = "-----";  
  
static int daysinmonth[12] = {31,28,31,30,31,30,31,31,30,31,31};  
  
char *monthnames[] = {"January", "February", "March", "April", "May", "June",  
"July", "August", "September", "October", "November",
```

```
        "December"};
```

```
char *daynames[] = {"Sun" , "Mon" , "Tue" , "Wed" , "Thu" , "Fri" , "Sat" };
```

```
/*day of week that first day starts on*/
#define DAYSTART 0
/*first month to print out*/
#define MONSTART 0
```

```
/*exit the program cleanly - display error message*/
byebye(fmt,al,a2,a3,a4,a5,a6,a7)
    char *fmt;
    int al,a2,a3,a4,a5,a6,a7;
{
    if (fmt != NULL)
    {
        char tmp[80];
        sprintf(tmp,fmt,al,a2,a3,a4,a5,a6,a7);
        printf(tmp);
    }
    printf("\n");
    printf("Usage: pcal [-1] [-m startmonth]\n");
    printf("           [-n nummonths] [-u] [-y startyear]\n");
    printf("           startmonth:day of month to start on(1=jan...12=dec)\n");
    printf("           startyear :year to start on(1989=1989, 89=0089)\n");
    printf("           default startday=1, startmonth=1,\n");
    printf("           startyear=current year\n");
    printf("           nummonths :#of months to print out(default is 12)\n");
    printf("           -1      :suppress printing of ^L's after each month\n");
    printf("           default is to print them\n");
    printf("           -u      :print this synopsis\n");
    exit(0);
}
```

```
/*get month,day,year of today date, year=89(mean actual year is 1989*/
getmmddyy(month,day,year)
    int *month, *day, *year;
{
    long clockval,time();
    struct tm *dateinfo,*localtime();

    clockval = time((long *) 0);
    dateinfo = localtime(&clockval);
    if (month)
        *month = dateinfo->tm_mon+1;
    if (day)
        *day = dateinfo->tm_mday;
    if (year)
        *year = dateinfo->tm_year;
}

*****  
*isleapyear                                     Tue Oct 25, 1988 -> 21:42:56
*  
*returns 1 if 'year' is a leap year else returns 0.
```

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```
*1988 should be passed as 1988 and not 88.
*/
int isleapyear(year)
    int year;
{
    return((!(year % 4)) && (year % 100) ? 1 : 0);
}

/*Return day of the week for Jan 1 of the specified year.*/
/*0=sunday....6=saturday*/
/*I ripped this out of someone elses program*/
/*author unknown*/
int jan1(year)
    int year;
{
    int day;

    day = year + 4 + ((year + 3) / 4);      /* Julian Calendar      */
    if (year > 1800)                      /* If it's recent, do  */
    {
        day -= ((year - 1701) / 100);      /* Clavian correction  */
        day += ((year - 1601) / 400);      /* Gregorian correction */
    }
    if (year > 1752)                      /* Adjust for Gregorian */
        day += 3;                          /* calendar            */
    return (day % 7);
}

/*return day of the week for the date passed in*/
/*month = 0-11, day is 1 based, year is assumed to be 4 digits*/
/*RETURN:0= sunday....6=saturday*/
int dayofweek(month,day,year)
    int month,day,year;
{
    int i;
    int dow = (-1);

    dow += day + jan1(year);

    for(i=0;i < month;i++)
        dow += daysinmonth[i] + ((i == 1) * isleapyear(year));
    return(dow % 7);
}

*****
*genweek                                     Mon Feb 27 00:46:16 EST 1989
 * - generate calendar for 1 week
 */
genweek(week,weeknum,startday,daysinweek,numdays)
    int week[];      /*#of each day of week to be generated*/
    int weeknum;     /*week # for current month*/
    int startday;   /*starting day*/
    int daysinweek; /*last day to be generated*/
    int numdays;    /*#days in month*/
{
```

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```
int i;
int row;
int endday;

if (weeknum > 5)
    return;

endday = startday + daysinweek - 1;

for(row=0;row < 5;row++)
{
    INDENT();
    printf("|");

    for(i=0;i< 7;i++)
    {
        /*see if day of the week contains a day for this month*/
        if (week[i])
            switch(row)
            {
                case 0:
                    printf("%2d :  %s",week[i],      /*changed | to : */
                           (THESPLIT) ? "/" : " ");
                    break;
                case 1:
                    printf("--- %s ",(THESPLIT) ? "/" : " ");
                    break;
                case 2:
                    printf("   %s  ",(THESPLIT) ? "/" : " ");
                    break;
                case 3:
                    printf(" %s", (THESPLIT) ? "/" : " ---");
                    break;
                case 4:
                    if (THESPLIT)
                        printf("/    %2d",week[i]+7);
                    else
                        printf("      ");
                    break;
                }
            else /*this day of the week is in last month or next month*/
                printf("%-9.9s",spaces);
            printf("|");
            }
        printf("\n");
    }
    INDENT();
    printf("%-71.7ls\n",dashes);
}

*****  
*genmonth                                Sun Feb 26 23:21:30 EST 1989
* - generate calendar for 1 month
*/
genmonth(month,year)
```

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```
int month;
int year;
{
int i,j,k,rep;
int startday; /*day of week 1st day starts on*/
int numdays; /*#days in month*/
int dow; /*day of week*/
int weeknum = 1; /*# of the current week to print*/
int week[7];

i = (80 - strlen(monthnames[month])) / 2;

/* printf("%-*.*s$-s\n\n",i,i,spaces,monthnames[month]); */
/* The following code replaces the above line because the brain damaged */
/* OS-9 C compiler will not properly handle the printf statement. This */
/* code works under OS-9 and BSD4.2 Unix. */

rep = 0;
while (rep < i)
{
    rep++;
    fputs(" ",stdout);
}
puts(monthnames[month]);
puts("");

/* End of replacement code. Brett Wynkoop 29 march 1989 */
numdays = daysinmonth[month] + ((month==1) * isleapyear(year));

startday = dayofweek(month,1,year);

INDENT();
printf("| SUN | MON | TUE | WED | THU | FRI | SAT |\\n");
INDENT();
printf("%-71.71s\\n",dashes);

/*figure out first row*/
/*first row of calendar*/
for(i=0,j=0;i < 7;i++)
    if (i >= startday)
        week[i] = ++j;
    else
        week[i] = 0;

/*generate row for one week of calendar*/
i = 7 - startday;
genweek(week,weeknum,1,i,numdays);
/*rest of calendar*/
for(k=0; i < numdays;i += k,k=0)
{
    for(j=0;j < 7;j++)
        if ((i+k) < numdays)
            week[j] = ++k + i;
        else
            week[j] = 0;
```

```
if (k)
    genweek(week,++weeknum,i+1,k,numdays);
}
}

*****  

*main
* - main program
*
*/
main(argc,argv)
int argc;
char *argv[];
{
int i,j;
int curmonth = 1; /*current month of year*/
int curyear; /*current year*/
int numday; /*#of the day of the week*/
int nummonths = 12; /*#of months to print out*/
int controll = 0; /*suppress printing of control L's 0=no, 1=yes*/

/*set defaults*/
getmmddyy(0,0,&curyear);
curyear += 1900;

/*parse command line args*/
for(i=1;i<argc;i++)
{
    if (argv[i][0] == '-')
        switch(argv[i][1])
        {
            case 'm': /*day # of the week to start calendar on*/
                if (++i == argc)
                    byebye("-m requires integer argument");
                else if ( (sscanf(argv[i],"%d", &curmonth) != 1) || (curmonth < 1) || (curmonth > 12) )
                    byebye("Bad arg '%s' for -m flag\n", argv[i]);
                break;
            case 'n': /*#of months to print*/
                if (++i == argc)
                    byebye("-n requires integer argument");
                else if ( (sscanf(argv[i],"%d", &nummonths) != 1) || (nummonths < 1) )
                    byebye("Bad arg '%s' for -n flag\n", argv[i]);
                break;
            case 'y': /*day # of the week to start calendar on*/
                if (++i == argc)
                    byebye("-y requires integer argument");
                else if ( (sscanf(argv[i],"%d", &curyear) != 1) )
                    byebye("Bad arg '%s' for -y flag\n", argv[i]);
                break;
            case 'l': /*suppress ^L's*/
                controll = 1;
                break;
            case 'u': /*usage*/
                byebye(0);
                break;
        }
}
```

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```

    default:
        byebye("Bad command line arguement: %s",argv[i]);
        break;
    }
}
else
    byebye("Bad command line arguement: %s",argv[i]);
}

curmonth--;

/*loop through months*/
for(;nummonths > 0;nummonths--, curmonth++)
{
    if (curmonth == 12)
    {
        curmonth = 0;
        curyear++;
    }
    printf("\n\n\n%-38.38s%-4d\n\n",spaces,curyear);
    genmonth(curmonth,curyear);
    if (!control)
        printf("\f"); /*form feed to next page*/
}
}

```

Saturday Session Report on Cocofest by Marty Goodman

This is a 7K long report on the Saturday session of the CoCoFest being held here in Chicago. Special attention is given to Burke and Burke's Power Boost 6309 software - hardware upgrade for the CoCo 3.

The first day of the two day "First Annual Last CoCo Fest" here in Chicago was a striking success by most criteria. Though the show is of modest size (only about fifteen vendors present) the turnout was substantial for this point in the history of the CoCo. Certainly many hundreds of people were in evidence here. The small room for the vendor area was quite crowded much of the time. The seminars were quite well attended. Frank Hogg gave an intriguing talk about how CDI machines that may ultimately sell as many as 10 to 100 times as many units as did the CoCo 3 had similar potential to be expanded into full blown OS 68K if appropriate add-ons were made available, possibly by CoCo Community types. The sizeable room for the seminar (about the same size as that at many Rainbowfest seminars in the past) was virtually filled. My own seminar (an open ended question and answer session about CoCo hardware and software) was equally well attended. These two were followed by talks by Steve Bjork on the History of the CoCo and by a long and well-attended seminar given by Kevin Darling about the technical details of CD-I and CD-ROM systems.

I had little time to see the main attraction (the vendors of products) but can for now comment on some highlights, and will try to add more information tomorrow or the next day.

Glenn Dahlgren of Sundog Systems was present with his full line of products. I saw their new Photon at the show for the first time. It is a superlative arcade action game with an original and novel design, that calls for quite challenging strategy of play and offers 64 different levels. The action has that smooth and professional character that one has come to expect from Sundog's products. I also played a bit with Sundog's Crystal City, a very colorful and fast "shoot 'em up" game. Sundog also had on display some of their older favorites, including Sinistaar, a thoroughly addicting n-th generation Meteors-type game that I've played at home for many hours.

Kala Software was present with the latest release of Ultimuse, Ver 10.8 for the MM/1 OSK machine. This music program has been extremely well received by music professionals. Their advertising includes the following quote from a satisfied music teacher: "Our weakest students have excelled beyond their wildest dreams since we introduced Ultimuse to the classroom". The new Ultimuse manual is quite professional, with an attractive

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cover and many excellent renditions of the Ultimuse screens as part of the text.

IMS (including Kevin Pease and Paul K Ward) were present with their MM1 hardware and software. A small run of 8 megabyte RAM cards sold out quite quickly. An experimental prototype "MM/2" (board with a 68020-like processor) was on display briefly, tho it is hardly clear at this time whether this little toy of Kevin Pease's will ever become a mass produced product. IMS now says they expect at long last to be caught up on delivery of I/O boards and memory boards within a month or two.

Chris Burke of Burke and Burke has made up a total of 100 of a first run of his 6309 "Power Boost" kits for the CoCo 3, of which 50 were reserved for mail order customers and 50 were available to show goers. 40 were sold the first day of the this show! Chris tells me that he would agree with my guess that the power boost (which speeds up OS9 by using the new instructions within the 6309) will speed up most normal OS9 application programs by about 20 to 30%. HOWEVER... there are some OS9 applications, such as hard drive access, that could well be speeded 100% or more with the ultra fast block move capabilities of the 6309. Applications intensive in such tasks could well be speeded up more than the 20 to 30% figure mentioned above. In addition, Chris pointed out that, although his Power Boost patches to OS9 currently make use of the extra 6309 instructions in the 6309, they do not YET make use of the native 6309 mode of that processor, which runs even ordinary 6809 instructions faster than does the 6809 due to lower cycle count for those instructions. Chris IS hard at work implimenting use of the native 6309 mode in his patches and at adding patches to more and more modules in OS9. Upgrades to his Power Boost product will eventually become available, but this is no reason not to buy it right now, for those upgrades will be available at a very nominal sum when they are ready (likely as little as \$5 extra). Chris is not yet ready to deliver his 6309 book, but hopes to be able to provide that soon. Note that to use the Power Boost you must take your CoCo 3 apart, remove the 6809 chip (destructively remove it and install a socket where the 68B09E was soldered) and install the 63B09E chip that is included in the Power Boost kit. I personally am confident that the Burke and

Burke POWER BOOST is the ONLY sensible, practical, "fully reliable and factory spec" approach to squeezing more raw speed out of a CoCo 3 under OS9 by hardware means.

Of course CoCo PRO!, who is putting on this show, was present in force vending their complete line of CoCo hardware and software. A chap from California (Andre Lavelle of SBUG) arrived with a van full of Radio Shack CoCo hardware and software, selling them at ultra low closeout prices. MV Systems was present with their GUIB for Basic 09 and other OS9 software. Sub-Etha Software was offering Minibanners, CheckBook+, and other software for OS9, RSDOS, AND for the MM/1. Supersoft was offering their full line of CoCo software including UltraEd+ and Sprite-BASIC, as well as some few special closeout hardware items at quite low prices. Strongware was offering a variety of graphic utilities for the MM/1 and CoCo. BARSoft was offering such software as KBCom, UltiMusE, and ADOS. Adventure Survivors had their line of adventure game Newsletters and also were selling Eversoft products, including the Powerstones of Ard series. Hawksoft was offering their wide line of products including their switchable Hi Res Joystick adaptor, Basic programmer's interface, and Icon Basic09. They also were selling disk drives. The Cook County CoCo Club, Glenside CoCo Club, and OS9 Users Group also were exhibiting. I'll try to offer more info on those mentioned in this paragraph in a future post on Delphi. Unfortunately, no representatives of Falsoft were able to make it to the show today.

I personally have been enjoying myself greatly, in large part due to the fellowship of the still-enthusiastic CoCo users who swarmed over this show, and in particular thru the company of numerous good friends I've made over the years in the CoCo Community. It's impossible to name them all, especially this late at night as I type this report up, but specifically I enjoyed my dinner with Steve Bjork and Eddie Kuns, the company of the CoCo PRO! team with whom I am rooming, and the opportunity to joke once again with Kevin Darling, Frank Hogg, Chris Burke, Chris Hawk, Glen Dahlgren, Carl Boll, and of course Dave Myers.

---marty

oo

Info on POWER BOOST

Here is some more information about the Burke and Burke POWER BOOST product, that visibly speeds up execution of OS9 code on a CoCo 3.

Power Boost from Burke and Burke
(some observations made at the Chicago CoCoFest)
(c) Marty Goodman 1992

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At the Chicago CoCo Fest put on by CoCoPRO! (DAVEMVERS here on Delphi) I had a chance to look at the initial release of Burke and Burke's POWER BOOST. This impressive hardware-software enhancement for CoCo 3's running OS9 depends on patches to OS9 made by Chris Burke that allow OS9 to use the enhanced instruction set of the Hitachi 6309 to speed a number of system operations.

The 6309 and the Burke and Burke Power Boost software

The 6309 was made by Hitachi to be an exact instruction for instruction and pin for pin duplicate of the 6809 in low power CMOS technology. Tho we don't know for sure at this time, all evidence would indicate that the 6309 is a micro-coded type chip, unlike the original 6809, which was one of the last complex "random logic" ("hard wired") central processor chips made. Hitachi's engineers apparently had a fair amount of space left in the micro-code ROM after meeting Motorola's specs for the chip. They apparently secretly added extra registers and instructions that allow for much faster data transfers, 16 by 16 to 32 bit product multiplications, and more. Burke and Burke's product takes advantage of the enhanced data transfer instructions of the 6309 to greatly speed some common OS9 system operations. Specifically, I observed a MDIR E and a read of a megabyte of data off a Burke and Burke hard drive to be speeded by about 40%. This is a quite visible improvement! In another demonstration, Chris Burke showed how his patched version of OS9 could take about 20 seconds off the time it took to cobble a boot disk. He made the demonstration dramatic by cobbling to a RAM disk, where the cobbler time went from about 22 seconds to about 2 seconds.

The patcher program currently being sold is quite elaborate and professional. As it is installed, it one by one looks for over fifty separate modules of OS9, identifies, them, and automatically patches them for use of the 6309. It displays to the user which modules it found to patch and which ones it looked for but could not find or could not patch. The operation of the patcher program is quite "smart" and automatic.

There's a lot more to come, however. Chris Burke has been working on this project for just one month. He currently does not have patches for hard drive software drivers other than his own that go with the Burke and Burke CoCo XT. However, he hopes to have out patches for other hard drive systems that use SCSI and SCSI-like host adaptors, such as Disto and Kenton / RGB. He is also working on patches to the OS9 assembler, as I understand

it.

Additionally, Chris' current patches make use ONLY of the extra instructions that one has access to in the 6809 emulation mode of the 6309. It is Chris Burke's hope to soon have out improved patches that not only deal with more modules, but also take advantage of the native 6309 mode of the 6309, in which even ordinary 6809 instructions are executed in fewer machine cycles, and therefore more quickly. Chris reports that in his preliminary testing, utilising this mode should add roughly an extra 15% speed increase over the speed increase he already has achieved. Chris' conservative estimation is that he may achieve an average speed increase in many situations of around 50% over a CoCo 3 running ordinary OS9 on a 6809 once all his planned patches are completed. There's no need to wait to buy the Power Boost, for Burke and Burke will have a very generous upgrade policy when new patches are available.

The Hardware Hurdle

The biggest hurdle in installing the Power Boost product is that one must remove the SOLDERED IN 68B09E chip from one's CoCo 3 and replace it with a socket in which one can insert the 63B09E that Burke and Burke supplies with the Power Boost package. This requires one skilled in repair of printed circuit boards, or at least able to do a competent "destructive removal" of the old chip. Destructive removal (a technique I have described several times in the past in my CoCo Consultations column in Rainbow, and which I expect to be described in detail again in an upcoming Rainbow article on the Power Boost product) is sufficiently easy to learn that anyone who has a fine soldering iron, a fine needle nosed pliers, a fine diagonal cutting pliers, and a decent solder sucker should be able to complete the task. But it does take time, patience, and skill with soldering equipment.

Owners of 1 meg upgrades will have to be a bit MORE skillful and creative in installing the Power Boost product. They will have to desolder their "CPU board" from the existing 68B09E chip, then either solder it to the 6309 chip and add extra pin extensions to the 6309 so it will go into the socket they install on the CoCo, OR (and this is what I recommend) they will have to make up a clever satellite board that lies under the main 1 meg upgrade CPU board and permits the 6309 to be put into a socket on that extra board. The CPU board would be "up on stilts" above this extra board, and the extra board will have pins below that allow it to be plugged into the socket that is installed into the CoCo 3. Such extra little boards would be most professionally made using flush mount machine pin pin strips, tho they can be finagled with the less esoteric and more common ordinary machine pin sockets and pin strips.

AUSTRALIAN OS9 NEWSLETTER

Chris Burke actually did to a little bit of experimenting with Disk Basic and the 6309. However, given the fact that most RS DOS based software spends very little time using RS DOS code, patches to Disk Extended BASIC will be of little value. Chris notes that if a CoCo 3 running RS DOS with a 6309 is put into 6309 mode, execution is speeded by about 15%, but printer baud rate will be thrown off and disk I/O will cease to work reliably due to changes in certain critical delays and timing loops. He noted that the ultra fast data move instructions of the 6309 could be used to speed up

considerably the graphics commands in Disk Basic, and even provided a few patches that do speed BASIC a little, but not dramatically.

I hope this article contributes to the understanding of just what Power Boost is and can do. Chris Burke occasionally drops by Delphi OS9 and CoCo SIGs under user name CoCoXT, and may be available to answer further questions here from time to time.

---marty

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